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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,535	08/20/2001	Edward O. Shaffer II	60393B	5814
109	7590	06/02/2004	EXAMINER	
THE DOW CHEMICAL COMPANY INTELLECTUAL PROPERTY SECTION P. O. BOX 1967 MIDLAND, MI 48641-1967			KILDAY, LISA A	
			ART UNIT	PAPER NUMBER
			2829	

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

~~09/035,535~~ 09/533,535

Applicant(s)

ZURAVLEFF, WILLIAM K.

Examiner

Lisa A Kilday

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-31 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-21, 30-31, drawn to method of making a resin, classified in class 438, subclass 758.
- II. Claims 22-23, 29, drawn to an integrated circuit article, classified in class 257, subclass 632.
- III. Claims 24-28, drawn to a composition comprising the hydrolyzed or partially hydrolyzed product of a combination of silanes, classified in class 523, subclass 107.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention II does not require all the particulars of invention I has separate utility such as forming a resin. See MPEP § 806.05(d).

Inventions I and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as forming a semiconductor device. See MPEP § 806.05(d).

Inventions III and II are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b),

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3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as a sealant and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

**Species Restriction of Group I:**

Group I contains claims directed to the following patentably distinct species of the claimed invention: Species are defined from elements A-L below:

***Applicant must choose an element from each group A-L:***

A, Optional removal of resin (pg. 3, lines 17-18)

1. Remove resin
2. Do not remove resin

B, Optional second layer of a low dielectric constant organic polymer (pg. 3, lines 18-19; pg. 17, lines 27-28)

1. Apply second layer

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2. Do not apply second layer

C, First layer contains pores (pg. 5, lines 12-14, 19)

1. Yes

2. No

*If applicant chooses C1, applicant must choose from D:*

D, First layer contains adhesion promoters, coating aids, and/or residual materials left after forming the pores (pg. 5, lines 14-18)

1. Yes

2. No

E, Preparation of oligomers and polymers contains optional compound with two aromatic acetylene moieties (pg. 7, line 8 – pg. 8, line 6)

1. Yes

2. No

F, Substrate may include transistors (pg. 16, lines 5-8)

1. Yes

2. No

G, Optionally curing first layer prior to applying organosilicate material (pg. 17, lines 7-9)

1. Yes

2. No

H, Optional etching of organosilicate material (pg. 17, lines 20-21)

1. Yes

2. No

*If applicant chooses H1, applicant must choose element from I:*

I, Types of etching (pg. 17, lines 21-24)

1. Wet etching

2. Dry etching

J, Removal of photoresist (pg. 17, lines 24-25)

1. During etching

2. Separate removal step

K, Applying an optional second hardmask over second organic polymer layer

(must have previously chosen B1; pg. 17, lines 27-29)

1. Yes

2. No

L, Type of organosilicate film (pg. 25, lines 5-24)

1. Option a: organosilicate film is non-sacrificial and not photo-definable

2. Option b: organosilicate film is sacrificial and not photo-definable

3. Option c: organosilicate film is non-sacrificial and photo-definable

4. Option d: organosilicate film is sacrificial and photo-definable.

M, Type of dual damascene processes (pg. 19, line 10 – pg. 22, line 6)

--Choose from Scheme 1-24--

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species (*if electing Group I*) for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claim is generic.

Applicant must elect one invention from Group I-III. If the applicant elects Group I, the applicant must specify which Embodiment of Species (A-M) he is electing. The applicant **must** choose a Species (A-M) when electing Group I. Applicant is required to pick one embodiment from A-M. For example, one embodiment A1B1C1D1E1F1G1H1J1K1L1M1 would be a method of making a resin by removing the resin, forming a second layer of low dielectric constant organic polymer, wherein the first layer is porous and has adhesion promoting properties, where the Preparation of oligomers and polymers contains optional compound with two aromatic acetylene moieties, the substrate contains transistors, cure the first layer prior to applying organosilicate material, wet etch of organosilicate material, remove photoresist during etching, apply second hardmask over second organic polymer layer, wherein the organosilicate film is non-sacrificial and not photo-definable, and the scheme used to form the dual damascene is scheme 1.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims

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are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

A telephone call was made to Susan Zerull on 5/19/04 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### **Conclusion**

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0957. See MPEP 203.08.

Any inquiry concerning this communication from the examiner should be directed to Lisa Kilday whose telephone number is (571) 272-1962. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo,



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can be reached on (571) 272-1957. The fax number for the group is (703) 872-9306.  
MPEP 502.01 contains instructions regarding procedures used in submitting responses  
by facsimile transmission.

Lisa Kilday

LAK *LAK*

5/19/04

*[Signature]*  
**KAMAND CUNEO**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**